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Vocational, or Agricultural and Mechanical Education.

SPEECH
OF
HON. WM. H. MURRAY,
OF OKLAHOMA,
IN THE HOUSE OF REPRESENTATIVES,

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The House in Committee of the Whole House on the state of the Union had under consideration Senate joint resolution (S. J. Res. 5) providing for the appointment of a commission to consider the need and report a plan for national aid to vocational education.

Mr. MURRAY of Oklahoma. Mr. Chairman, we have drifted a little bit from the subject.

The object sought is increased production, and the problem to be solved is the discovery of the wisest plan to attain that object, whereby expenses of living may be reduced and future generations may be clothed and fed. This knowledge, sometimes called "vocational education," but more commonly called agricultural and mechanical education, is not a new science. It is the oldest science known to civilized man. We are just now having a revival of that science, lost to the white race during the many centuries of superstition and ignorance known as the Dark Ages. If you will but read the first book of Moses, or the story of Laban and Jacob, you will observe the ethnologic distinction between Laban and Jacob. You will further discover that Jacob knew little of stock raising, while Laban, the scientific stock breeder, knew and actually succeeded, through sexual selection, in demonstrating a principle of Darwinism 2,000 years before Darwin was born, wherein he robbed old man Jacob of his herds by producing "a spotted, ringed, streaked, and striped" breed from the old man's herds. Laban said the Lord had prospered him, and Jacob thought it was true. But he was really robbing the old man by a process of science in the name of the Lord. But the story will disclose to you that the old man and his boys ultimately woke up, when it was too late, to the fact that Laban, through a shrewd contract, had gotten the old man's herds by the process of science, or through his knowledge of stock breeding and feeding.

The resolution before the House looks to the creation of a commission of nine to devise a plan for "vocational education." Of all subjects, the white race, and especially the English-speaking peoples, have the least knowledge of agriculture. When ancient history points to the renown of Egypt and its rich soil, it is found that such was due to the splendid farmers of Egypt. The fertile valley of the Nile yet remains where it fed the inhabitants of the ancient civilization of Egypt; but the Egyptian farmer is gone.

There is no story in history but which brings in bold relief the renown, the wonder, and the grandeur of the Egyptian farmer. Even the Bible, as well as Josephus, speaks of the rich, fertile valley of the Nile. Hence production was ample, and its civilization grew the wonder of ancient times. Out of this civili-

zation was established the great Alexandrian library. Through it the Pyramids were constructed. But after their country was overrun and controlled by a foreign race who could not comprehend that system the great library was destroyed and the civilization of Egypt went down in night never to rise again. But when you understand that the Egyptian farmer made it a rule annually to turn up and break up the soil 10 or 11 inches deep just prior to the overflows, which resettled it, thus giving for a dry season an 11-inch water base and available fertility for plant life, then you will understand the reason for the renowned fertility of the Nile to be due to a complete knowledge of the laws and science of production. In the great Roman civilization the same principle applied. They, too, held to the rule of deep annual breaking of the soil and to scientific, intense cultivation; and notwithstanding the Roman governmental principle militated against individualism the farmers of Rome developed an individualism and independence, giving ample production and feeding, clothing, and making possible that great civilization. But other classes grew jealous of this independence and, just as we have done in the past few decades, stinted the farmer, and in order to break down his independence passed the "Agrarian laws" and placed the title to his estate in the Government of Rome, that they might jerk his farm and home from under him. This so discouraged the Roman farmer that he refused to put forth extra effort to build up the soil year by year until he lost that great art. Production began to fail. High cost of living followed, ushering in a decay of the Roman civilization. I want to say to the business and professional man, and especially to you men of the East—and I measure my words as I say it—that to stint the farmer is but to take the bread from your own mouths. In proportion to governmental care for the direct producer just in that proportion will all other classes prosper, and, conversely, that in proportion to your stinting him will you suffer the consequences. The farmer can stand low production better than you can. Obviously, your wisest plan would be to give him all of the opportunities; to encourage him to remain upon the farm, because it means greater production, less cost of living, and strengthens his ability to feed mankind. For, after all, the farmer must feed the world. I was astonished when I read the first annual report of the Secretary of Agriculture on the farmers' needs. This report is made up of methods of "coordination" for his department, which is but another term for centralized control, but is weak in recommendations for the farmer. I stand appalled at two statements in that report, one in which he says the farmer ought not to ask for rates of interest lower than other people, even after the Secretary advocates a rural credit system from 10 to 60 years, which discloses the superb ignorance of a knowledge of agriculture and its needs of this otherwise learned Secretary of that department.

While it is true that in a "commercial system" of banking, interest rates should be uniform to all, but "commercial banking" means, primarily, personal security on short-time loans; but the farmer can not pay on 60 years' time such rates as must be charged under a "commercial system" of banking. The Secretary further says that the farmer ought not to organize or cooperate with a view to fixing his prices. This statement is doubtless made upon the assumption that his prices will be too

high to other classes, which will prove true under low production, but can never prove true under a scale of ample production, where the number of farmers are proportionate to other vocations—in short, when the farmer remains on the farm. But they will not all remain there if you do not encourage them not only in the knowledge of agriculture but in his credit and banking privileges, in your tariff laws, and in all the other policies and measures of government. The professional or business man is shortsighted indeed if he can not see these fundamental truths, and I warn you now that such narrow policy in Congress and through the Secretary of Agriculture will bring wreck and ruin first upon you and the laboring man living in your midst and serving you at the machine and in the shops. Though you despise the farmer, your own selfish interest ought to dictate the wiser policy of encouraging him and all who would desire to engage in the calling of agriculture. Europe has done this. All nations of Europe have felt these requirements needed, and have made such provision, not that they like the farmer better than we but that they know their own interest better than the American nonproducer.

The lessons to be learned from the experience of Rome and of Egypt are sufficient to prove the sound philosophy of Olin M. Roberts, of Texas, in his wise saying that "civilization begins and ends with the plow." Therefore the knowledge of the plow and its allied uses is the knowledge of first magnitude.

During the Dark Ages the white race lost the science of agriculture. Perhaps the German, the Dane, and the Swede have retained more of this knowledge than any other. The Chinese, by reason of their superior knowledge of agriculture, have been enabled to support one-fourth of the people of the world. For 40 centuries, without mining or manufactures, upon agriculture alone, they have lived in peace, fed, and sustained that dense and congested population. When you understand that the Chinese have in the country precincts 4,800 people to the square mile, which would compress, at that rate, in one of our average Western States the entire population of this Republic, you will then realize that if we were to double our population without increasing the knowledge of agriculture, our power of production, misery and starvation would confront us—if not social revolution destroy us.

It will not be my purpose to discuss whether Malthusianism is true, but Prof. Malthus once taught that the time would come in the world when, with universal peace, the world could not feed itself, due to the fact that production increases by arithmetical ratio, while population increases by geometrical ratio. But whether that doctrine be true or not, we are confronted by the stubborn problem of production sufficient to feed our people; and if we were to double now the population of this Republic, revolution would inevitably follow. When I cite you the fact that this Republic and the States have spent for 25 years \$180,000,000 annually for agriculture and increased production only 3 per cent plus, while population has nearly doubled, then you will realize what the next 25 years will bring to us.

The resolution before the House disclosed from its discussion even the lack of knowledge by these otherwise intelligent gentlemen who compose this House. The Lever bill is an entirely different bill from the proposition submitted in this resolution. I am partly for this resolution and partly against it. If by the

adoption of this resolution is meant that this body, with its present information, is not ready to enact a bill now to provide for agricultural education, then I would favor it in order to obtain that information. If it means that after its enactment the committee that would be appointed would be entirely made of university professors, I would oppose it.

In this statement I would not have you believe that I am opposed to universities. On the contrary, I believe in them. I repeat, again, I believe that it is of equal importance that a few men be educated beyond the great body of citizens as it is to diffuse knowledge among all the citizens, but this knowledge for the many should be confined to those things they can in after life use. Many things are produced by scientists and men of learning of common use among the people, but which few of our citizens would care to learn. Among these is the almanac, which in colonial times was made alone by Ben Franklin and sold to the people; but the knowledge of making almanacs, which few of us would care to learn, is understood by so many they now give them away.

There are two systems of education—the “classical” and the “industrial” schools—the university and the agricultural and mechanical college. Both schools are required if we are to subserve the best interests of American society, but they can not be conducted on the same plan nor united in their faculty or management.

If for an entire generation all the States in America should appropriate a half million dollars annually for the support of their universities and in that generation produce but one Jefferson, it would be worth that aggregate expenditure. Likewise, it would be worth such expenditure if each State would appropriate for a like period the same amount for an agricultural and mechanical college and in one generation they created one Luther Burbank, who has produced 2,500 new plants—among them the Burbank potato for the dry regions of the West; the navel, or seedless, orange; the white blackberry; the seedless grape; the cross between the apricot and the plum, called the plumcot; the spineless cactus; and others too numerous to mention. His horticultural and agricultural achievements, the pure composite of science, in the interest of man and to feed the world, marks him the greatest benefactor for 20 centuries. For the reason that the classical school and industrial school can not be united under the same faculty or management do I strenuously object to appointing university professors on this commission to frame the plan. Equality of degree and kind of education should not be sought. We should have equality of opportunity in every science, art, literature, and of all known philosophy of man, and that, too, at the expense of the public, leaving each individual to choose his own course as to whether he desires a higher education and the kind—that suits his taste and ambition after he has first been taught the elements of things he can use in after life.

I have had a deal of experience with this question.—I have been in two constitutional conventions. In the first one the committee turned down the proposition to teach agriculture in the common schools. I went upon the floor and convinced the convention that to teach agriculture in the common schools would prove wholesome. When the constitution of our State was

under consideration, I appointed a committee that I thought would write a provision in that constitution, and to my astonishment they turned me down because they did not understand the subject. They said it was "nonsense." I went upon the floor and put into the Oklahoma constitution a clause existing in no other constitution, making it mandatory to teach the elements of agriculture, horticulture, stock feeding, and domestic arts and sciences in all public schools in that State. Following that the legislature vitalized that provision, and consequently every school in the State teaches agriculture. [Applause.]

The legislature then separated the board of regents, providing one for the university and another elective by the farmers as the regents of all agricultural and mechanical colleges, providing for a system of farmers' county institutes and six district or secondary schools of agriculture, with but a two-year course, the real farmers' school. Then the battle began. The same battle that has characterized every step since the organization of the first board of agriculture in Great Britain. The same contest which characterized this work in its birthplace in America—the State of Illinois. At about this time Justin Smith Morrill, of Vermont, took the lead in this House and passed the first Morrill Act in 1860, but which was vetoed by President Buchanan. His renewed efforts resulted in the Morrill law of July 2, 1862, by the approval of the wise old "Abe" Lincoln, resulting in the creation of an agricultural and mechanical college in every State in this Republic.

The profound learning of Morrill convinces the student of this subject that he was 200 years ahead of his generation. The same battle in Illinois, of which the inquiring mind may convince itself, if it will take up some encyclopedia of agriculture, under the subject of "agricultural education," has all along the line been the same. Our contest in Oklahoma is and has been the same as existed in the State of Illinois. The battalions against us have for its right wing the State university, who know nothing of the economics of agriculture, standing with jealousy and the fear of competition; the left wing consists of a few of those from every calling—some from among them being farmers themselves—who can not comprehend the wisdom and philosophy of the system. This is my reason for saying, as I said before, that I would oppose this resolution if university presidents should control the board, just as it was a mistake to put into the Cabinet as the Secretary of Agriculture a university president who knows nothing of the science of agriculture.

Since Oklahoma's experience the great State of Wisconsin has followed with 6 district or secondary schools of agriculture, Arkansas with 6, Mississippi with 30, and, prior to that, Georgia and Alabama had wisely entered upon the plan.

Now, remember, gentlemen, the Lever bill is not a vocational educational bill. The Lever bill is essential when you enter upon a vocational system, for the reason that you must keep a campaign going on among the farmers themselves before you can train their sons and daughters. Dr. Harvey said he was never able to convince any man over 40 years old that the blood circulated. Hence, the Lever bill will reach many over 40 years old. The doctrine of an increased knowledge of agriculture is more than an educational question. It is a sociological problem

that must come with the growth and development of mankind. You must put it into the school and teach the boys and girls who will compose the generation on to-morrow, but if you do not follow it with the Lever bill, to enable trained men to go forth and battle for the cause, keeping a propaganda before the adult farmer till you have trained their boys, some of them will try to destroy the system. [Applause.]—

This brings to mind an incident within my own experience when just such work as the Lever bill contemplates was first introduced in my county. A boys' corn club was organized in my community at Murray schoolhouse. A boy some 12 years old, son of a tenant farmer, a good man, but shiftless, who had been taught and really believed that farming consisted wholly of labor (of work and then more work), joined the club and received his quota of seed corn. The next morning he asked his father for an acre of ground upon which to plant it. After explaining that he "wanted to make a scientific farmer," his father took the corn away from him, fed it to the chickens, gave him a kick, and told him to "hunt the calves." But later, in consequence of this being the only club in the county, it won some \$300 in prizes at the State and county fairs, which they divided equally among the club members. This winning of money was the only thing that convinced this boy's parent, and the next year he was permitted to join. You know we often-times have to knock a man down to convince him, and sometimes the second time.

This brings to mind another phase of this subject. It aids in a better knowledge of marketing. The crops most difficult to produce or that require the greatest knowledge are invariably marketed more wisely than that class of crops easy of production. for instance, anybody in the South, even a negro, can grow cotton, and it has always been unwisely marketed. It is not marketed at all. It is "dumped" off to the buyer, destroying the market. Notwithstanding it is the most stable crop. It can be thrown in the weather after being baled and does not deteriorate in value. You will observe that the products of the fruit farmer, although perishable, are generally wisely marketed, because it requires more judgment to produce it. No one ever heard of unwise marketing of alfalfa, because it requires more knowledge of the soil and of plant life and of all the elements that make for increased production. Hence scientific agriculture means to the farmer better marketing while it means to the balance of the world increased production and lower cost of living. Moreover, shiftless, ignorant method of agriculture in every country increases landlordism, always a detriment to any country, because a nation is strong or weak in proportion to the number of home owners in proportion to the population and the land. Under intelligent, scientific, intensive cultivation the owner of "broad acres" can not compete under his tenant system with the small farmer. Hence economic necessity forces sale, and consequently small home owning. From this standpoint alone vocational education is worth the money.

I have often observed that fact, and do you know that the worst enemies of agricultural education are some of the farmers themselves? Merchants, feeling that it is a necessity, sometimes think it is "nonsense," and that farmers do not work hard enough. God knows they work hard enough, but too many of them without thought. A farmer must take his "thinker"

along with his plow to the field if he would achieve the greatest success.

If work, and only work, were all required to make a good farmer, then the man with the greatest physical strength and the greatest endurance of physical labor would and could be the best farmer, and the negro would be the best farmer of any race in the world. But you know it is not true. As a matter of truth it requires more science and a greater knowledge of elements of science to become a scientific farmer than to fill any other calling in life.

If a man were a druggist, he would need understand chemistry and a few allied sciences; or a physician, these and but a few others. But if he would be a scientific farmer he must understand physical geography and physiography, and especially these as they disclose the formation of soils and the preservation of fertility, overlooked in the universities. He must understand natural history and zoology to understand animal life—stock breeding and feeding. He must understand botany to know plant life; entomology to enable him to combat insect pests; and besides these he must learn the elements of chemistry and biology and keep tab on the weather. I do not contend that it is necessary for the schoolboy to master these sciences as a student of a university, but he must learn the elements of them and as they relate to his business. The farmer must learn chemistry only as it relates to soils, while the university student masters that science as it relates to minerals, the precious metals, and compounds.

Now, gentlemen, I am for the Lever bill, but the Lever bill is nonsense without following it up with a bill providing for the school for vocational education. The Lever bill can be of service only to the thinking farmer and by keeping up the campaign among the adult farmers, so they will not send their boys off to "hunt the calves."

When you have had an opportunity to duplicate my experience you will find that some few farmers will refuse your doctrine, even after you have convinced them by your arguments. This reminds me of my personal experience. Some years ago I delivered a lecture on seed corn and how to produce corn, at the Cottonwood schoolhouse, located in the Washita Valley, some 4 miles from my home. Nearly all of the farmers in the entire valley for many miles were present, including some tenants on my farm. I delivered a speech for two and one-half hours on the subject of corn, applying the science to many things I knew within their own experiences and observations, so as to give the reason for each of these experiences, that I might convince them of the truth of all. I explained to them that the key to seed corn was the one word "uniformity"; that only one of a variety should be planted in the same plot; that an early and late corn must not be mixed to secure a heavy yield; and pointed out that the selection must be determined by the soil, the rainfall, and the climate; that they must know that the same seed would be unsuited for Minnesota, where the rivers run up hill and the Irish vote the Republican ticket, and at the same time for a locality like South Carolina, where the rivers run down hill to the sea and the "niggers" positively refuse to vote. The following week I rode over my farm to discuss with my tenants the question of seed. I found they all understood my lecture

perfectly well and that all of them, with one exception, had first-class seed. This particular one had the worst lot of seed corn I ever saw planted that would germinate. He had red, yellow, white, and blue grains, little and large, short and long, gourd seed and shoe-peg shapes mixed together—a perfect Duke's Mixture of seed corn. I said to him, "You have got a bad lot of seed corn." He said, "I know it." I replied, "Couldn't you do any better?" "Didn't want to do any better," said he, "because this land of yours will produce 45 bushels of any corn and you get one-third rent; 15 bushels, and that's enough rent for any man." Of course that ended the argument. I did not grow impatient because I have long ago learned that it requires considerable patience, and, for a public man, sometimes to exercise a good deal of courage, to battle for the public's interest. I have learned that men will take a cold, a cussing, or a rail off your fence; indeed, anything, except good advice.

The self-conceited scholar, with an eye constant upon astronomy, as great as that science be, who looks down with disdain upon Mother Earth, does but betray his own ignorance. No greater truth was ever uttered than this statement by Gen. Albert Pike, the scholar, poet, archeologist, linguist, philosopher:

There is no legal limit to the possible influence of a good deed or a wise word or a generous effort. Nothing is really small. Whomsoever is open to the deep penetration of nature knows this.

And in this other saying:

Alexander of Macedon has left a saying behind him which has survived his conquests: "Nothing is nobler than work." Work only can keep men and kings respectable. And when a king is a king, indeed, it is an honorable office, to give tone to the manners and morals of the nation; to set the example of virtuous conduct. Work and wages will go together in men's minds in the most royal institutions.

I have this further to say about the American farmer. I say it here; I have said it to them at home. The American farmer is the most learned farmer in all the world about politics, general history, banking and coinage, and the science of government. He is the most learned farmer in the world about every man's business except his own. [Laughter.] The German farmer knows his business, although sometimes he knows little else. But he can come to our country and settle on a clay hill, where an American farmer would starve to death, and make the land more valuable, while he is earning a living at the same time.

I repeat again, my friends, consider the law of production and the great increase of population that will be brought to us in another generation, and be convinced of the fact that we can not spend too much money in developing the youth that will bring another generation of farmers that will equal the farmers of all the world.

I said awhile ago that I would oppose this resolution if university professors alone would constitute the board. Why? Because a university has to do with those peculiar sciences that create a mental aristocracy, of classics, and things of a character that cause the university student to overlook or to look with disdain upon those things that relate purely to life and to the soil, and so naturally, conscientiously, he is opposed to it. University students do not understand its necessity, and that is the reason why you have never seen a success achieved in joining the university with an agricultural and mechanical college. You only combine their number, but

you either destroy the university or you destroy the agricultural training as such and agricultural and mechanical education. We need them both in our great civilization. They both must be taken care of, as I before stated, and it is the duty of government to provide for the education of every youth to the fullest extent of known knowledge of the sciences and of the arts and of literature, and that, too, at the public expense. But we must do it with discretion, in the light of experience, without sacrifice to either.

Now, why does not the agricultural and mechanical college meet the condition of the farm? Because the agricultural and mechanical colleges in the various States must needs have such a large curriculum and such a heavy course that the moment the graduate steps out of school he has a better opportunity in other lines to meet the requirements of science. He therefore never goes back to the farm.

The consequence is we are educating the boy away from the farm. We need that agricultural and mechanical college continued for the purpose of creating the sort of scientific knowledge that is needed for the tremendous demands of life. But in addition we need a district or secondary agricultural college in every congressional district in the United States. [Applause.] What for? A college that will teach the boy nothing more than a two years' course, and that confined to practical farm needs, and when he leaves he will go back to the farm—this will educate farmers' boys for the farm.

If he wants to go further, he can do so by going to the State agricultural and mechanical college or pursue the other course in the university. And the result will be that he will have that knowledge that will be necessary to make him a farmer and to increase the sum of knowledge in his community, and the boys will not all be going to some other station.

Why do they go to other stations? Because the record shows that out of 28 States, with 28 universities and 28 agricultural and mechanical colleges, the highest average wages paid to any graduate are paid to the agricultural and mechanical college graduates. And why should they go back to the farm under the conditions the farmers now have to meet, where hardships meet them on every hand, and where in the finances of the country we have overlooked their interests and have not made provision whereby they could bring their resources and get credit at the banks? Therefore wisdom suggests that we encourage the States to put agricultural instruction into the common schools, and that this Congress provide for a secondary agricultural and mechanical college in every congressional district in the United States, under a provision of law whereby there shall be appropriated annually 3 cents per capita, according to the population in every State, on the condition that the State shall put up the balance to sustain the institution, furnish the building and sufficient land for demonstration and experimental farm, the institutions being limited to a two years' course and confined to questions of soil, farm management, construction of houses and barns, road building and machinery, insect pests and allied sciences, requisite to make of him a farmer but not a scientist, the States being required to meet certain conditions, which should be named in the law, but otherwise, as in the case of our State agricultural and mechanical colleges supported by the

Morrill, Hatch, Adams, and other funds, to have complete control over such secondary agricultural and mechanical institutions. Such a system would educate the farmer's boy for the farm rather than from the farm. Provision should be made whereby each State should have its quota according to the population, and in those congressional districts which are wholly confined to the cities special information should be provided to train the boys of mechanics and artisans, whose labors would be in the shop and at the forge and at the machine. A portion of the fund should be supplied to the normal schools of the State, in order to train the teacher in a practical knowledge of these subjects, to the end that teachers may be supplied to the common schools with a knowledge of the subject at hand.

I may be pardoned, Mr. Chairman, to call our attention to our party declaration in favor of this policy, and I may be pardoned the personal reference to state that I drew the first plank and had the honor to submit to, with the privilege of discussing before, the platform committee of our party at Denver in 1908, which was the first declaration on this subject ever adopted by any American political party. In 1912 all three of the leading political parties in general terms announced the same principle. The Denver platform is in these words:

The Democratic Party favors the extension of agricultural, mechanical, and industrial education. We therefore favor the establishment of district agricultural experiment stations and secondary agricultural and mechanical colleges in the several States.

My friends, this subject is a deep one, too deep for so short a discussion as we are giving it now. If it be the purpose of this resolution to announce that we are not ready for a real vocational educational bill, then the resolution ought to be passed; but if you gentlemen do not intend to pass one of that kind, you ought to defeat the Lever bill, because the Lever bill, without that increased knowledge, would mean a greater power in the hands of the Secretary of Agriculture to "coordinate," as he calls it, but to control and dictate policies to Congressmen in their districts. Unless you amend it in such a way as to take away that authority that will be the effect of it, as it has been recently revised.

The gentleman from Georgia made a suggestion a while ago, in a question, about the authority of this Government to do these things. I would be the last man in the world who would want this Government to assume the authority of the States. I would want this under the control of the States, just as the agricultural and mechanical colleges are operated to-day. Then you are within the Constitution. You are keeping the doctrine of leaving to the States those peculiar things that confront them and are necessary to their welfare and being.

In passing I want to say, you will find in all this fight those who want to put agricultural education where it does not belong. You will find those who want to confine it to too narrow a course; but in my opinion it ought to be taught in every public institution except the university, not for the purpose of crippling the university but because in the university it will not serve any wholesome purpose. It ought to be in the normal schools so as to train the teachers. In the past the trouble has been that when State after State has adopted a provision for teaching agriculture there have been no teachers who understood the subject, and the regrettable part about it all is that

we can not get the people satisfied or interested in the subject until some great pestilence like the boll weevil or the foot-and-mouth disease, amounting almost to a calamity, comes upon them.

My friends, you have heard a good deal about the boll weevil. When that little bug came across the Rio Grande and spread across the Sierra Blanca country, Dr. J. H. Connell, now the president of Oklahoma's agricultural and mechanical college, but then the editor of a great scientific journal at the heaviest salary of any man in the Mississippi Valley, went to the legislature of Texas and said to them, "Appropriate money to pay every farmer in those two counties not to raise any more cotton for two years." The politicians in the legislature, ignorant as they were, said, "Oh, there is no little Mexican bug that can destroy the Texas cotton crop."

What was the result? The boll weevil crossed the Sierra Blanca country and year after year spread farther, destroying the cotton crop of the State, bringing poverty and bankruptcy in its path, like Sherman's march to the sea. Finally the legislature had to pass an appropriation offering a reward of \$50,000 for any man who could give them any idea of how to curtail the ravages of that little insect. What was the result? Land values went down, merchants went bankrupt, bankers went out of business. Disaster and woe were upon every hand. Now the boll weevil has crossed the Mississippi River; but Texas learned a lesson. She put into her schools a course of instruction in agriculture, and the next generation of farmers will be better than the present one. So with the other Southern States. So after all it was a blessing in disguise. It seems that we never get action until something confronts us, until we meet with some difficulty which must be conquered.

How true is this philosophy of Morals and Dogma:

What we call accident is but the adamant chain of indissoluble connection between all created things. The locust, hatched in the Arabian sands, the small worm that destroys the cotton boll, one making famine in the Orient, the other closing the mills and starving the workmen and their children in the Occident with riots and massacres, are as much the ministers of God as the earthquake; and the fate of nations depends more on them than the intellect of its kings and legislators.

I will state to you candidly that I am not uneasy about our soils' feeding the American people, with proper knowledge. As a matter of fact, we have swamp lands enough to add to this Republic in point of productivity nine States, but it would be unwise to drain them now. We can irrigate every foot of land east of the Rocky Mountains, and any first-class civil engineer will tell you we can do it. And we can do it as cheaply as the cost of building the Panama Canal. Some day it will be done, but it ought not to be done now. Why? Because the method now used is a wasteful method. The farmers must be taught how to preserve the soil first. We have practiced a system of waste long enough and on too much of our land already. The people must wake up to the necessity of conserving what we now have, and when they learn better methods of preserving the soil that they have wasted in many of our States there will be a great saving of our agricultural resources. For instance, in some of the Southern States they import \$10,000,000 worth of guano to fertilize the soil. That amount goes out annually never to return. I am happy to know that my State was not settled until a knowledge of agriculture began to take hold of

the people, and we have a soil that will last under intelligent treatment for a thousand years.

When the American farmer understands his subject, and the American business man and professional man understands it as they ought, then we can drain the swamp lands. Then we can irrigate the West, and then we shall be enabled to support with less difficulty than now, by the increased product, a population greater than that of the Chinese Empire.

I am only pleading now for that active support behind this principle that will bring in another generation a production that will keep pace with population. Because, as sure as "the night follows the day," if you do not increase this power, with your doctrine of universal peace—which I hope may come without further wars for the next hundred years—as sure as fate revolution, anarchy, and social death will follow in the wake of our civilization. Many of our troubles are not political troubles. Many of our troubles are social troubles that have to do with inspiring the youth of the land toward a change in thought, toward a change in sentiment, and toward a change in their habits, hopes, and ambitions.

Permit me to recite a little instance in my community. A young man by the name of John Golryan, a German, educated in Germany, came to that community and had lived here four years. He was employed by J. L. Neeley, half a mile from my home, to pick cotton. Every morning when the dew was on and he could not pick it he was out gathering butterflies and millers. He was asked what he was going to do with them. He said, "I am going to send them to Germany and sell them to teach the pupils entomology in the public schools." They said, "Why don't they catch them in Germany?" He replied, "Our people know so much how to destroy the insects that they have destroyed them all in Germany." Then he was asked, "Why do you want to teach them further?" He said, "We have got to keep them from coming back." Christmas week he turned the laugh on them when he received from 5 cents to \$4.50 apiece for those little butterflies. Now, imagine the ridicule and sarcasm of an ordinary American at the very idea of catching butterflies to teach the science of "bugology"; and yet the toll of insects in the United States equals 35 per cent of America's annual production. Imagine the laughter and scorn and ridicule that would meet, to them, such a "freak idea"; but the time will come, and shortly, and you will have to meet it, because with everything comes destruction of that thing.

As you increase the farm products you increase the insects that destroy them. You will pretty soon find what my old Latin teacher told me about the meaning of *ad infinitum*. He said, "As you have learned in your entomology, you will find big bugs have little bugs on their backs to bite 'em, and the little bugs have still smaller bugs *ad infinitum*." I fail accurately to quote it, but you have the idea.

That is true in politics. The big bug politician has a little one on his back to bite him. [Laughter.] But the insects from one plant will eat another plant. You can pass all the bird laws you want to, but until you increase the knowledge of bugs—a very easy task—that are beneficial and bugs that are harmful and bugs that are parasites, so that you know those that are harmful from those that are beneficial; until you do

that you will have this continual annual toll by insects. The cotton-boll worm, the fruit worm, bud, corn, and tomato worm is the same worm, and hence worse than the boll weevil, but much easier to destroy. If all farmers knew this worm, they could destroy it in one season.

My friends, the cotton-boll weevil awakes in the spring, and by the 1st of September the generations coming from one pair will amount to 154,000,000, equal to the population of the Chinese Empire. What a blessing it would have been if a lark had been there to catch that pair in the beginning. [Laughter.] But, my friends, we will have to suffer a bit more with the high cost of living that you ascribe to first one thing and then another. With all the questions that will confront us, you will finally decide that it does not all come from tariff or banking laws or monopoly—important political problems, to be sure, but this is metapolitical—but a large part of it comes from a lack of production; and when the American people understand that, then they will comprehend these simple truths.

Furthermore, when they do that they will irrigate the lands in the West; they will drain the swamps; they will do two things at the same time drain away the malaria and give a richer soil to the Republic. You will find all these conditions meeting us at the turn of every corner.

The man who understands what bugs are harmful and talks about it in the average community is regarded by his fellow farmer as a crank. If every farmer knew it, instinctively they would destroy most insect pests and protect the birds without need of law. They would discover that the birds work for them free of wages and board themselves to boot. They would plow up the soil in winter and let the freezing kill the bug eggs, as they do in Germany, and at the same time increase the available fertility of the soil for plant life.

The American plan of education in all of the States has proceeded upon the wrong principle, because it has had for its ultimate object the preparation of the pupil for some profession or for running for public office. The child is usually told, as I was told when a boy, that every American had an opportunity to become President; and doubtless many of them believe, as I then believed, that to be true, while to know the utter hopelessness of such an exalted ambition is but to recall that out of the ninety-odd millions of American citizens and many other millions dead and gone we have had up to date but 27 Presidents.

It was natural that America's system should have begun upon this plan. We are only astonished that we have retained it so long. When America was settled it was deemed then that only he who desired to engage in one of the learned professions or was preparing for public office should be educated, and therefore that no women need be educated; indeed, none but the "governing class." Then began the fight for popular education at public expense.

I have in my library a book, written 125 years ago by a learned New England divine, arguing against the public school; and you would be astonished at his ingenious argument against it. But popular education finally won, and all the States have long ago made provision therefor by statute. The only mistake

made was that while changing from the principle of limiting education to the few that we did not change the substance as well and adopt that learning which would prove useful to the many—useful to those who never intend to pursue a profession or to run for public office. The German system is based upon the principle of training the child in something that he can use in after life; consequently the German, Dane, and Swede farmer may, know little of anything else, but he does know more about his own business than the American farmer. Statesmen are not altogether responsible. The people themselves have brought it about, largely due to parsimony in the matter of compensating the schoolmaster. The German pays his schoolmaster the same salary he does his judge, and the teacher with 30 or 40 years' experience becomes the master over the primary grades. The young graduate just entering the profession is put in control of the higher classes. Any great scholar can train the advanced student, but it requires the shrewdest of the profession to start aright the young and plastic mind of a child. Teachers are therefore constantly reciting their experiences of the necessity and difficulty of unlearning the pupil or correcting the mistake in the method and mental habit of the child formed under the tutelage of some mere boy or girl who has neither experience as a teacher nor knowledge of the philosophy of scholarship. Consequently, it may be said that as many scholars have been ruined by faulty systems of education as have been made by them. Hence, we need not wonder that in the substance, too, of education we have traveled so long the wrong road. In part this is all due to our limited statesmanship, but largely because the American people will not have any better.

All our institutions, political, social, and otherwise whatsoever, are but a reflex of the people themselves. So this great problem is more profound than the problems of education or of political statesmanship. It is a sociological problem. The minds, methods, tastes, social desires, heart throbs, hopes, and ambitions of the American people must needs be changed, and that, too, by an evolution that is impossible of attainment until the end of one or two generations. It is a process of social growth and development—a growth and development under a wise, persistent, constant policy. In a great measure this responsibility rests upon the people themselves to build by Divine guidance another generation wiser than themselves. Increased production and the problem of feeding future generations will tax the abilities of our most learned statesmen and test their courage to maintain a wholesome system, once discovered and inaugurated, against the blind, stubborn opposition of many who will be incapable of comprehending it.

We have but begun the march of progress, and have yet to breast the long slope up the Pikes Peak of our civilization. The burden is upon us to scale these heights or we must needs slide back again through a period of squalid decay, leaving nothing gained for the race and the progress of man during the many strenuous centuries through which he has passed; dare we cowardly decline the strident step?

Upon this point of the people's responsibility and what they will accept again permit me to quote from Gen. Albert Pike,

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the most learned American. In his *Morals and Dogma* he says:

All truths are truths of period and not truths for eternity; whatever great fact has had strength and vitality enough to make itself real, whether of religion, morals, government, or whatever else, and to find place in this world, has been a truth for the time, and as good as men were capable of receiving.

So, too, with great men. The intellect and capacity of a people has a single measure—that of the great men whom Providence gives it and whom it receives. There have always been men too great for their time or their people. Every people makes such men only its idols as it is capable of comprehending. With men who are too high intellectually the mass have as little sympathy as they have with the stars. The profoundest doctrines of Christianity and philosophy would be mere jargon and babble to a Pottawatomie Indian. Catholicism was a vital truth in its earliest ages, but it became obsolete, and Protestantism arose, flourished, and deteriorated. The doctrines of Zoroaster were the best which the ancient Persians were fitted to receive; those of Confucius were fitted for the Chinese; those of Mohammed for the idolatrous Arabs of his age. Each was truth for the time. Each was a gospel, preached by a reformer, and if any men are so little fortunate as to remain content therewith, when others have attained a higher truth, it is their misfortune and not their fault. They are to be pitied for it and not persecuted.

Under our faulty educational system if a well-educated boy is not adapted to a profession he becomes a vagabond. It is a costly, fatal mistake. It is the cost of a life, because he has no training for anything else, and to gain his education he has grown to be a veritable bundle of nerves. With the loss of muscle he is unable to work. He reads fiction exclusively, which excites his emotions and passions. He becomes morose, moody, remorseful, takes to cards to steady his mind, then to drink to drown his troubles. He has bad associates; he is a vagabond—when otherwise, but for his faulty education, he would have been a good, happy, and prosperous citizen. This is hell to contemplate.

You may reply that "my boy, I am sure, will become a great lawyer or a great physician," as the case may be; that "our family before us were all successful practitioners, and therefore there can be no doubt of his success." Hence, he does not need this agricultural knowledge; he does not need a knowledge of the earth and air and creation upon it. The best education is that education that gives you a knowledge of the soil, of the atmosphere, of animal life, of nature. If he becomes a lawyer, he will then know better how to question the witness who is a farmer. The best practitioner at the bar is the lawyer who can get in as much of his own evidence as possible and keep out that of his adversary. This is best illustrated in the story of a great lawyer of whom I once heard, who, although he was a great scholar and knew the law, was unacquainted with bookkeeping. Procuring a case in bankruptcy involving several millions of dollars, the first thing he did was to attend an up-to-date business college until he had mastered all the intricacies of bookkeeping and accounting. When the case was called he was enabled to get every material fact from the witnesses and the experts who went upon the stand. This he could not have done had he not known as much about bookkeeping as they did. In truth, the lawyer, the great lawyer, like the great statesman, must fill the philosopher's definition of a great scholar; that is, to know something of everything and everything of something—the law. Hence, the lawyer needs this training to complete his education for the law.

I do not care if you are a banker—you may follow it where you will—but the man who gets the closest to the soil, along with other intellectual powers, is the greatest man in every community.

True enough, the man who digs in the ditch all of the time will be as narrow as the ditch. But show me the man who stays behind the counter all the time, and I will show you a man who gets as narrow as the distance between the shelves and his counter. Show me the man, whatsoever the profession or occupation, that goes into the suburbs of a city, builds himself a home with a plat of ground about it, with a garden, a miniature farm as it were, who takes an interest in it and occasionally digs in the soil, and I will show you a man in every community who is the oracle of that community, who controls its destiny. Show me the woman who takes a personal interest in her flowers and garden, studies them, and occasionally digs in the dirt, and I will show you a woman that is healthy, happy, a good housewife. Show me a hen that scratches in the dirt, and I will show you the hen that lays the egg. Such is the eternal divine decree. Agriculture? It is not narrowing. If a man wants to be a statesman, how can he legislate on a tariff bill unless he knows those troubles and difficulties that confront the cotton farmer, the wheat farmer, and every other farmer in the Republic? When he gazes in the air and never looks down he lives a dream life, that either makes of him a great professional man or, failing in his ambition, a vagabond on society.

As a simple, concrete illustration of the needs of scientific agriculture to add to the knowledge of a statesman we have but to recite that our best Presidents have been those who have possessed the most comprehensive knowledge of all mankind. Intelligence, philosophy, genius; virtue, integrity, patriotism—all these are required to preserve civilization, especially in republics. Statesmen with this scholarship are invariably practical men; too many of the exclusively "classical" school are dreamy, theoretical, and impractical.

The best lawgiver is he who has the widest range of the knowledge of life—all elements of society—of the mansions of the rich, the hovels, huts, and cabins of the poor; all institutions of learning, the churches of the pious and good, and the slums and dens of debauchery and prostitution.

The most notable instance of the truth of this philosophy is but to recite the career of the immortal Lincoln, who knew everything from the lowest strata of society to the most profound problems of statesmanship and philosophy. He is the only ruler in all history who could exercise supreme power, as he did upon the suspension of the writ of habeas corpus, without abusing that power. He knew every stratum of society, and this made him to be acquainted with and gave him sympathy for the heart throbs, the difficulties, and problems of every American citizen. This universal knowledge raised his mind above class or local prejudice and made it as broad as the Republic. [Applause.]

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